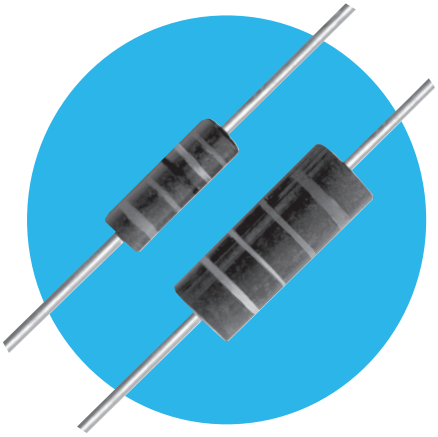
Resistors

General-Purpose Failsafe Moulded Wirewound Resistors



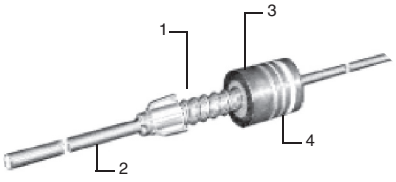
SPH/SPF Series

- Drop-in replacement for BWH/BWF
- 2 watt rated with 1 watt dimensions
- ±5%, ±10% tolerance
- 0.1 ohm to 2400 ohms
- TCR's as low as ±150 ppm/°C standard (custom TC's available)
- Weldable and solderable leads

All Pb-free parts comply with EU Directive 2011/65/EU (RoHS2)

Electrical Data

Type	SPH	SPF
EIA RS-344 Style	CRU2	CRU2
MIL-R-11 Style	RC32/RC42	RC32/RC42
Resistance - Std.	0.1Ω to 2400Ω	0.1Ω to 1000Ω
Tolerance - Std.	±5%, ±10%	±5%, ±10%
Power Rating	2 watt @ 70°C 1 watt @ 115°C Derating to 0 @ 160°C	2 watt @ 70°C 1 watt @ 115°C Derating to 0 @ 160°C
Max. Continuous Working Voltage	$\sqrt{PR}$	$\sqrt{PR}$
Min. Insulation Resistance Dry Wet	10,000 Meg 100 Meg	10,000 Meg 100 Meg
Min. Dielectric Withstanding Volts (RMS) ATM Reduced Pressure	1000V 625V	1000V 625V
Hotspot Temperature Rise	145°C @ 2 watts	145°C @ 2 watts
Typical Load Life	5%	5%
Current Noise	Negligible	Negligible



(See notes below)

1. Resistive Element
All resistor types have resistance alloy winding on a braided fiberglass substrate. Intermediate silicone coatings are used to enhance processibility and to provide protection to the resistive element.

2. Termination
The SPH and SPF resistors are terminated using an alloy coated copper flashed steel lead welded to a cap of the same material. This termination assembly is mechanically crimped, utilizing an improved crimp design, to the resistive element.

3. Encapsulation
The SPH and the SPF are encapsulated utilizing a compression molded phenolic plastic material. The SPF has a flame resistance coating applied over the resistive element to provide flammability protection when destructive overloads may occur.

4. Marking
All products are marked utilizing heat and solvent resistant color code bands consistent with EIA/MIL requirements. The first band is double width to designate wirewound construction. A fifth band, blue in color, is used for flameproof identification.

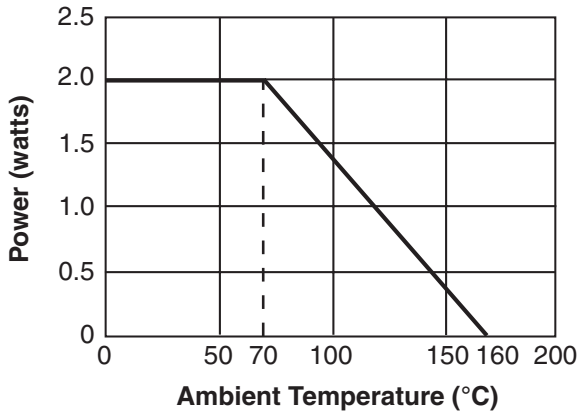
Environmental Data

Test	SPH	SPF
Temperature Coefficient (ppm)*	0.1Ω - 0.16Ω ± 1000 0.18Ω - 0.68Ω ± 800 0.75Ω - 2400Ω ± 400	0.10Ω ± 1700 0.11Ω - 0.16Ω ± 1000 0.18Ω - 0.68Ω ± 800 0.75Ω - 1000Ω ± 400
Dielectric Withstanding Voltage (RMS)	1000V	1000V
Momentary Overload	5%	5%
Low Temperature Operation	5%	5%
Temperature Cycle	5%	5%
Humidity	5%	5%
Load Life	5%	5%
Terminal Strength	5%	5%
Resistance to Solder Heat	5%	5%
Solderability	No Failures	No Failures

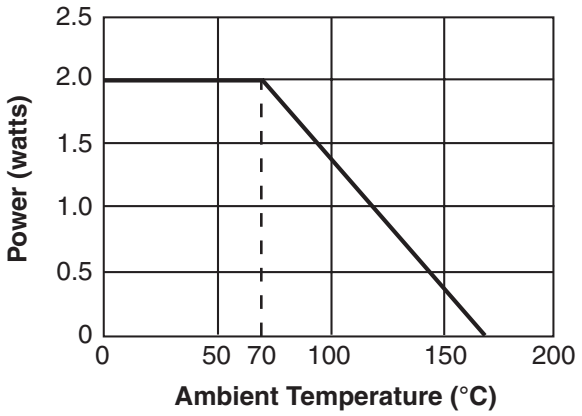
Physical Data

Dimensions (Inches and (mm))				
Type	A	B	C	D
SPH	0.562 ± 0.010 (14.3 ± 0.25)	0.225 ± 0.008 (5.72 ± 0.20)	0.032 ± 0.002 (0.813 ± 0.05)	1.50 ± 0.126 (38.1 ± 3.2)
SPF	0.562 ± 0.010 (14.3 ± 0.25)	0.225 ± 0.008 (5.72 ± 0.20)	0.032 ± 0.002 (0.813 ± 0.05)	1.50 ± 0.126 (38.1 ± 3.2)

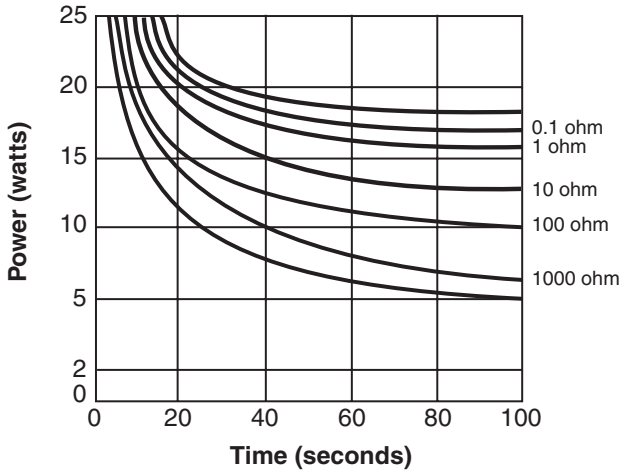
SPH Power Derating Curve



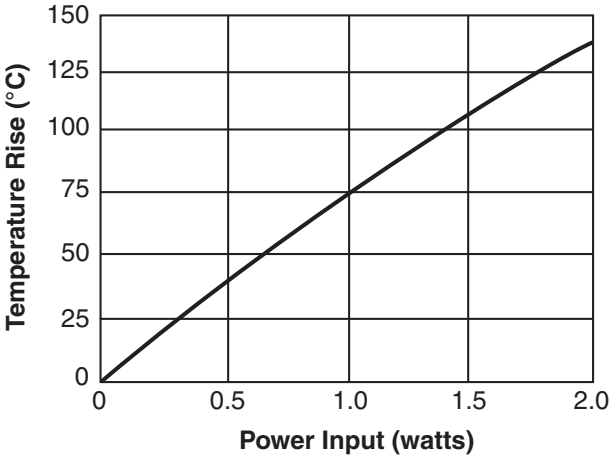
SPF Power Derating Curve



SPF Typical Fusing



SPH and SPF Temperature Rise Chart



Ordering Procedure

This product has two valid part numbers:

European (Welwyn) Part Number: SPH-150RJI (SPH, 150 ohms ±5%, Pb-free)

S	P	H	-	1	5	0	R	J	I
1				2				3	4

1 Type	2 Value	3 Tolerance	4 Packing & Termination Finish
SPH	R = ohms K = kilohms	J = ±5%	I = Standard packing & Pb-free
SPF		K = ±10%	Tape pack 1250/reel

USA (IRC) Part Number: SPH1500JLF (SPH, 150 ohms ±5%, Pb-free)

S	P	H	1	5	0	0	J	L	F
1			2				3	4	

1 Type	2 Value	3 Tolerance	4 Termination Finish	Standard Packing
SPH	3 digits + multiplier	J = ±5%	Omit for SnPb	1250/reel Tape pitch 0.375” (9.5mm) Tape to tape 2.875” (73mm) Leads untrimmed
SPF	R = ohms for values <100 ohms	K = ±10%	LF = Pb-free	

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